



SYMPOSIUM ON METAL-ON-METAL TOTAL HIP REPLACEMENT DEVICES

Sponsored by ASTM Committee F04 Medical and Surgical Materials and Devices

May 8, 2012
Sheraton Phoenix
Phoenix, AZ

Symposium Chairs: Steven Kurtz, Ph.D.
Corporate Vice President
Exponent, Inc.
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ABOUT THE SYMPOSIUM

The purpose of this Symposium is to provide a forum for consensus development and scientific exchange on the needs for characterization and standardized testing related to MoM hip replacement devices. The main focus of this Symposium is to address unmet standardization needs and to help establish best testing practices in the four following areas:

- Characterization of Adverse Local Tissue Reactions
- Wear/Corrosion: Metallic Product Measurement in Fluid and Tissue Samples
- Analyses of Retrieved MoM Implants
- In Vitro Testing of MoM Implants under Adverse Conditions

Papers on any topic related to the objective were requested.

Symposium on Metal-on-Metal Total Hip Replacement Devices

8:30AM

Welcome and Opening Remarks

Steven Kurtz, Ph.D., Symposium Co-Chair

8:35AM

Regulatory Status Update on MOM

Elizabeth Frank, FDA

8:50AM

The Role of ASTM Standards and MOM Litigation

Stephen Bennett, Esq., Baker & Daniels

SESSION I: POST-MARKET SURVEILLANCE

Session Chairperson: William Mihalko, M.D., Ph.D., Symposium Co-Chair

9:00 AM

Talk 1: Prevalence of Metal-on-Metal Bearings in the United States

Presenter: Steven Kurtz, Ph.D.

9:12 AM

Talk 2: Metal on Metal and Other Bearing Trends among Fellows of the AAOS

Presenter: William Mihalko, M.D., Ph.D.

9:24 AM

Talk 3: Metal-on-Metal Revisions: A Review of Causes and a High Incidence of Early Failure

Presenter: David Fabi, M.D.

9:36 AM

Talk 4: An Analysis of Over 6,000 Adverse Event Reports Submitted to the FDA for Metal-On-Metal Total Hip Replacement Devices

Presenter: Akosua Atta-Mensah

9:48 AM

Talk 5: A Systematic Review of Clinical Performance of Biomet Metal on Metal Total Hip Replacement Devices

Presenter: Jing Xie

10:00 AM

Talk 6: Comparative Effectiveness of Metal-on-Metal, Ceramic-on-Ceramic, and Metal-on-Polyethylene Bearings in Medicare THA Patients

Presenter: Kevin Ong, Ph.D.

10:12 AM

Round Table, Session 1

10:30 AM BREAK

SESSION II: DIAGNOSTIC ASSESSMENT

Session Chairperson: Jack Lemons, Ph.D., Symposium Co-Chair

10:45 AM

Talk 7: Serum Metal Ion Concentrations Decline (But Do Not Rapidly Normalize) Following Revision of Metal-on-Metal Total Hip Bearings

Presenter: James Browne, M.D.

10:57 AM

Talk 8: Serum Cobalt and Chromium Levels from a Single Metal-on-Metal Total Hip Arthroplasty Implant

Presenter: Antonia Chen, M.D.

11:09 AM

Talk 9: A Method to Isolate and Characterize Wear Debris from Synovial Fluid and Tissues

Presenter: Fabrizio Billi, Ph.D.

11:21 AM

Talk 10: Implant Metal Hypersensitivity Correlates with Reported High Pain Levels in Patients with Total Joint Arthroplasties

Presenter: Nadim Hallab, Ph.D.

11:33 AM

Round Table, Session 2

12:00 PM LUNCH – POSTER SESSION

SESSION III: RETRIEVAL ANALYSIS

Session Chairperson: Steven Kurtz, Ph.D., Symposium Co-Chair

1:30 PM

Talk 11: The Development of a Standard for Assessing Wear of Explanted Metal on Metal Hip Joints

Presenter: Richard Underwood, Ph.D.

1:42 PM

Talk 12: Education from Retrieved Devices

Presenter: Jack Lemons, Ph.D.

1:54 PM

Talk 13: Fretting and Corrosion at the Taper Connections of Retrieved Modular Components from Metal-on-Metal Total Hip Arthroplasty

Presenter: Genymphas Higgs, B.S.

2:06 PM

Talk 14: Metal on Metal Local Tissue Reaction is Associated with Corrosion of the Head Taper Junction

Presenter: Charles Engh, Jr., M.D.

2:18 PM

Talk 15: Contrasting Wear in Large-diameter MOM with 28mm Metasul MOM

Presenter: Ian Clarke, Ph.D.

2:30 PM

Talk 16: A Comprehensive Methodological Approach to Cross-correlate Biomechanics, Wear, Wear debris and Histological Analysis in Fluid and Tissue from Retrieved Metal-on-Metal Implants

Presenter: Fabrizio Billi, Ph.D.

2:42 PM

Talk 17: The Assessment of Wear of Head / Neck Taper Junctions in Large Head Metal on Metal (LHMoM) Hips

Presenter: Richard Underwood, Ph.D.

2:54 PM

Round Table, Session 3

3:15 PM BREAK

SESSION IV: PRE-CLINICAL TESTING

Session Chairperson: A. Seth Greenwald, D. Phil (Oxon), Symposium Co-Chair

3:30 PM

Talk 18: Development of a Stop-Dwell-Start (SDS) Protocol for in vitro Wear Testing of Metal-on-Metal Total Hip Replacement

Presenter: Megan Hadley

3:42 PM

Talk 19: Evaluation of the Synergistic Interactions of Wear and Corrosion in a CoCrMo Alloy Used in Metal-on-Metal Hip Bearings

Presenter: Michel Laurent, Ph.D.

3:54 PM

Talk 20: Tribochemical Reactions in Metal-on-Metal Hip Joints Influence Wear and Corrosion
Presenter: Markus Wimmer, Ph.D.

4:06 PM

Talk 21: Denatured Protein Deposits Identical on Simulator and Explanted Hip Bearings?
Presenter: Michele Burgett, Ph.D.

4:12 PM

Talk 22: Lubrication of Artificial Hip Joints - The Effect of Synovial Fluid Chemistry:
Implications for the Development of Relevant Screening Tests
Presenter: Connor Myant, Ph.D.

4:24 PM

Round Table, Session 4

4:50 PM

Remains of the Day: Closing Remarks

A. Seth Greenwald, D. Phil (Oxon), Symposium Co-Chair

5:00 PM **SYMPOSIUM ADJOURNS**

INVITED POSTER PRESENTATIONS

Poster 1: Results of a 2-Year, Prospective, Controlled Study of Metal-Ion Release following MoM THA

Presenter: Scott Slagis

Poster 2: Alarming High Serum Metal Ion Levels in a Subset of Patients in a 2-Year, Prospective Study of MoM THA

Presenter: Scott Slagis

Poster 3: A Prospective Case Series Examining the use of a Big Femoral Head (BFH) Total Hip System

Presenter: Paul Beaul

Poster 4: A Multicenter Mid-Term Study using a Modern Metal-on-Metal Articulation Total Hip Arthroplasty

Presenter: Thomas Bernasek

Poster 5: Effect of Serum Changing Frequency on Metal-on-Metal Wear

Presenter: Dustin Whitaker

Poster 6: Study on Tribological and Electrochemical Performance of Metal Artificial Hip Joint Materials in Simulated Synovial Fluids

Presenter: Zikai Hua

Poster 7: Reducing Wear and Co Ion Release from Metal-on-Metal Bearings with Chrome Nitride Coatings

Presenter: Pos Traynor

Poster 8: Effect of Uncertainty on Wear Measurement of Metal-on-Metal Total Hip Replacement Components

Presenter: Paul Bills

Poster 9: Microstructures of MoM Retrievals

Presenter: Alfons Fischer

Poster 10: Advanced 3D Surface Metrology and Characterisation A Tool for the Assessment of Metal on Metal Implants

Presenter: Leigh Fleming

Poster 11: The Definition of Taper Failure in Metal-On-Metal Modular Total Hip Replacement

Presenter: Adam Hexter

Poster 12: Plastic Deformation from Edge Loading is Common on Retrieved Metal-on-Metal Hips and can be Predicted with Finite Element Analysis

Presenter: Dermott McHugh

Poster 13: High-Magnification Analysis of Retrieved MoM Hips Show Evidence of the Types of Bearing Contact Occurring in vivo

Presenter: Douglas Van Citters

Poster 14: Wear Products from Metal-on-Metal Implants: Origin and Biological Effects

Presenter: Isabelle Catelas